WHAT IS CLAIMED IS:

1.   1.   A method of operating a data transmission system comprising:
2.   segmenting a frame of user data for transport by plural AAL2 packets, AAL2
3.   packets being packets of ATM Adaptation Layer 2, ATM being Asynchronous Transfer
4.   Mode, each of the plural AAL2 packets having a header which includes a length
5.   indicator field;
6.   using one or more Internet Protocol packets to transport the plural AAL2
7.   packets;
8.   using a predetermined value in the length indicator (LI) field in a header of one
9.   of the plural AAL2 packets to indicate the frame is transported by plural AAL2 packets.

1.   2.   The method of claim 1, wherein the predetermined value is one of a range of
2.   reserved values for the length indicator field, each value of the range corresponding to a
3.   sequence number rather than to a length indication.

1.   3.   The method of claim 2, wherein the range comprises numbers which are
2.   greater than a maximum number of octets in a standard size AAL2 packet.

1.   4.   The method of claim 3, wherein a last AAL2 packet of the plural AAL2
2.   packets is detected by having in its length indicator field a value not greater than the
3.   maximum number of octets in a standard size AAL2 packet.

1.   5.   The method of claim 2, wherein the range includes at least one value
2.   between 48 to 63 inclusive.

1.   6.   The method of claim 2, wherein the range extends from 48 to 63 inclusive.

1.   7.   The method of claim 2, wherein a modulo division of the predetermined
2.   value provides the sequence number.

1.   8.   The method of claim 2, wherein a last AAL2 packet of the plural AAL2
2.   packets has in its length indicator field an actual length value of the last AAL2 packet,
3.   and wherein contents of a user-to-user indication (UUI) field in the header of the last
4.   AAL2 packet can be used to confirm that the last AAL2 packet is in a proper sequence.

9.   The method of claim 8, wherein the user-to-user indication (UUI) field in the header of the last AAL2 packet has a value Q-E, where Q is the number that would have been used in the length indicator field had the last cell not been the last cell, and wherein E is an endpoint of the range.

10.   The method of claim 1, wherein the predetermined value belongs to one of two ranges of reserved values for the length indicator field, each value of the two ranges corresponding to a sequence number rather than to a length indication.

11.   The method of claim 10, wherein the predetermined value is a value greater than a maximum number of octets in a standard size AAL2 packet.

12.   The method of claim 10, wherein when the predetermined value belongs to a first of the two ranges, the predetermined value corresponds to a sequence number for a first of the plural AAL2 packets; and wherein when the predetermined value belongs to a second of the two ranges, the predetermined value corresponds to a sequence number for other than a first of the plural AAL2 packets.

13.   The method of claim 12, wherein the first of the two ranges extends from 48 to 55 inclusive, and a second of the two ranges extends from 56 to 63 inclusive.

14.   The method of claim 12, wherein a modulo division of the predetermined value provides the sequence number.

15.   The method of claim 10, wherein a last AAL2 packet of the plural AAL2 packets has a predetermined end-of-user data packet value in its user-to-user indication (UUI) field of its header.

16.   The method of claim 1, wherein the predetermined value serves as a notification that another AAL2 packet of the plural AAL2 packets carries subsequent data belonging to the frame.

17.   The method of claim 16, wherein the predetermined value is a value greater than a maximum number of octets in a standard size AAL2 packet.

1   18.   The method of claim 17, wherein the predetermined value is 46.

1   19.   The method of claim 17, wherein a last AAL2 packet of the plural AAL2

2   packets is detected by having in its length indicator field a value not greater than the

3   maximum number of octets in a standard size AAL2 packet.

1   20.   The method of claim 17, wherein a user-to-user indication (UUI) field in

2   the header of the one of the plural AAL2 packets as sequence number.

1   21.   The method of claim 16, wherein the predetermined value is a value greater

2   than a maximum number of octets in a standard size AAL2 packet.

1   22.   The method of claim 21, wherein the predetermined value is 46.

1   23.   A method of operating a data transmission system comprising:

2   segmenting a frame of user data for transport by plural AAL2 packets, the AAL2

3   packets being packets of ATM Adaptation Layer 2, ATM being Asynchronous Transfer

4   Mode, each of the plural AAL2 packets having a header which includes a length

5   indicator field;

6   using one or more Internet Protocol packets to transport the plural AAL2

7   packets;

8   inserting a sequence number-related value in the length indicator (LI) field of a

9   header of all but a last of the plural AAL2 packets.

1   24.   The method of claim 23, wherein the sequence number-related value

2   inserted in all but the last of the plural AAL2 packets is greater than a maximum

3   number of octets in a standard size AAL2 packet.

1   25.   The method of claim 23, wherein the sequence number-related value

2   inserted in all but the last of the plural AAL2 packets is in a range of from 48 to 63

3   inclusive.

1   26.   The method of claim 23, further comprising:

2   inserting an actual length value in the length indicator (LI) field of the last of the

3   plural AAL2 packets; and

4 inserting in a user-to-user indication (UUI) field in the header of the last AAL2

5 packet a value which can be used to confirm that the last AAL2 packet is in a proper

6 sequence.

1 27. The method of claim 26, wherein the user-to-user indication (UUI) field in

2 the header of the last AAL2 packet has a value Q-E, where Q is the number that would

3 have been used in the length indicator field had the last cell not been the last cell, and

4 wherein E is an endpoint of the range.

1 28. The method of claim 23, wherein the sequence number-related value

2 inserted in all but the last of the plural AAL2 packets is selected from one of two ranges

3 of reserved values for the length indicator field.

1 29. The method of claim 28, wherein for a first of the plural AAL2 packets the

2 sequence number-related value in the length indicator (LI) field belongs to a first of the

3 two ranges, and wherein for all but the first and the last of the plural AAL2 packets the

4 sequence number-related value in the length indicator (LI) field belongs to a second of

5 the two ranges.

1 30. The method of claim 29, wherein the first of the two ranges extends from

2 48 to 55 inclusive, and a second of the two ranges extends from 56 to 63 inclusive.

1 31. A method of operating a data transmission system comprising:

2 segmenting a frame of user data for transport by plural AAL2 packets, the AAL2

3 packets being packets of ATM Adaptation Layer 2, ATM being Asynchronous Transfer

4 Mode, each of the plural AAL2 packets having a header which includes a length

5 indicator field;

6 using one or more Internet Protocol packets to transport the plural AAL2

7 packets;

8 inserting a predetermined number in the length indicator (LI) field of a header of

9 all but a last of the plural AAL2 packets, the predetermined value serving as a

10 notification that another AAL2 packet of the plural AAL2 packets carries subsequent

11 data belonging to the frame.

32. The method of claim 31, wherein the predetermined value is a value greater than a maximum number of octets in a standard size AAL2 packet.

33. The method of claim 32, wherein the predetermined value is 46.

34. The method of claim 31, wherein a last AAL2 packet of the plural AAL2 packets is detected by having in its length indicator field a value not greater than the maximum number of octets in a standard size AAL2 packet.

35. The method of claim 31, wherein a user-to-user indication (UUI) field in the header of the one of the plural AAL2 packets as sequence number.

36. A unit of a data transmission system which segments a frame of user data for transport by plural AAL2 packets, AAL2 packets being packets of ATM Adaptation Layer 2, ATM being Asynchronous Transfer Mode, each of the plural AAL2 packets having a header which includes a length indicator field, one or more Internet Protocol packets being used to transport the plural AAL2 packets, wherein the unit inserts a predetermined value in the length indicator (LI) field in a header of one of the plural AAL2 packets to indicate the frame is transported by plural AAL2 packets.

37. The apparatus of claim 36, wherein the predetermined value is one of a range of reserved values for the length indicator field, each value of the range corresponding to a sequence number rather than to a length indication.

38. The apparatus of claim 37, wherein the range comprises numbers which are greater than a maximum number of octets in a standard size AAL2 packet.

39. The apparatus of claim 37, wherein the range includes at least one value between 48 to 63 inclusive.

40. The apparatus of claim 37, wherein the range extends from 48 to 63 inclusive.

41. The apparatus of claim 37, wherein a modulo division of the predetermined value provides the sequence number.

1   42.   The apparatus of claim 37, wherein the unit inserts in the length indicator
2   field of a last AAL2 packet of the plural AAL2 packets an actual length value of the
3   last AAL2 packet, and wherein the unit inserts in a user-to-user indication (UUI) field
4   in the header of the last AAL2 packet a value that can be used to confirm that the last
5   AAL2 packet is in a proper sequence.

1   43.   The apparatus of claim 42, wherein the user-to-user indication (UUI) field
2   in the header of the last AAL2 packet has a value Q-E, where Q is the number that
3   would have been used in the length indicator field had the last cell not been the last cell,
4   and wherein E is an endpoint of the range.

1   44.   The apparatus of claim 36, wherein the predetermined value belongs to one
2   of two ranges of reserved values for the length indicator field, each value of the two
3   ranges corresponding to a sequence number-related value rather than to a length
4   indication.

1   45.   The apparatus of claim 44, wherein the predetermined value is a value
2   greater than a maximum number of octets in a standard size AAL2 packet.

1   46.   The apparatus of claim 44, wherein when the predetermined value belongs
2   to a first of the two ranges, the predetermined value corresponds to a sequence number
3   for a first of the plural AAL2 packets; and wherein when the predetermined value
4   belongs to a second of the two ranges, the predetermined value corresponds to a
5   sequence number for other than a first of the plural AAL2 packets.

1   47.   The apparatus of claim 44, wherein the first of the two ranges extends from
2   48 to 55 inclusive, and a second of the two ranges extends from 56 to 63 inclusive.

1   48.   The apparatus of claim 44, wherein a last AAL2 packet of the plural AAL2
2   packets has a predetermined end-of-user data packet value in its user-to-user indication
3   (UUI) field of its header.

1   49.   The apparatus of claim 36, wherein the predetermined value serves as a
2   notification that another AAL2 packet of the plural AAL2 packets carries subsequent
3   data belonging to the frame.

1 50. The apparatus of claim 49, wherein the predetermined value is a value
2 greater than a maximum number of octets in a standard size AAL2 packet.

1 51. The apparatus of claim 49, wherein the predetermined value is 46.

1 52. The apparatus of claim 49, wherein the unit inserts a sequence number in a
2 user-to-user indication (UUI) field in the header of the one of the plural AAL2 packets.

1 53. A unit of a data transmission system which segments a frame of user data
2 for transport by plural AAL2 packets, the AAL2 packets being packets of ATM
3 Adaptation Layer 2, ATM being Asynchronous Transfer Mode, each of the plural
4 AAL2 packets having a header which includes a length indicator field, one or more
5 Internet Protocol packets being used to transport the plural AAL2 packets, and wherein
6 the unit inserts a sequence number-related value in the length indicator (LI) field of a
7 header of all but a last of the plural AAL2 packets.

1 54. The apparatus of claim 53, wherein the sequence number-related value
2 inserted in all but the last of the plural AAL2 packets is greater than a maximum
3 number of octets in a standard size AAL2 packet.

1 55. The apparatus of claim 53, wherein the unit inserts the sequence number-
2 related value in a range of from 48 to 63 inclusive.

1 56. The apparatus of claim 53, wherein the unit inserts an actual length value in
2 the length indicator (LI) field of the last of the plural AAL2 packets; and wherein the
3 unit inserts in a user-to-user indication (UUI) field in the header of the last AAL2
4 packet a value which can be used to confirm that the last AAL2 packet is in a proper
5 sequence.

1 57. The apparatus of claim 56, wherein the user-to-user indication (UUI) field
2 in the header of the last AAL2 packet has a value Q-E, where Q is the number that
3 would have been used in the length indicator field had the last cell not been the last cell,
4 and wherein E is an endpoint of the range.

1   58.   The apparatus of claim 53, wherein the sequence number-related value
2   inserted in all but the last of the plural AAL2 packets is selected from one of two ranges
3   of reserved values for the length indicator field.

1   59.   The apparatus of claim 58, wherein for a first of the plural AAL2 packets
2   the sequence number-related value in the length indicator (LI) field belongs to a first of
3   the two ranges, and wherein for all but the first and the last of the plural AAL2 packets
4   the sequence number-related value in the length indicator (LI) field belongs to a second
5   of the two ranges.

1   60.   The apparatus of claim 59, wherein the first of the two ranges extends from
2   48 to 55 inclusive, and a second of the two ranges extends from 56 to 63 inclusive.

1   61.   A unit of a data transmission system which segments a frame of user data
2   for transport by plural AAL2 packets, the AAL2 packets being packets of ATM
3   Adaptation Layer 2, ATM being Asynchronous Transfer Mode, each of the plural
4   AAL2 packets having a header which includes a length indicator field, one or more
5   Internet Protocol packets being used to transport the plural AAL2 packets; wherein the
6   unit inserts a predetermined number in the length indicator (LI) field of a header of all
7   but a last of the plural AAL2 packets, the predetermined value serving as a notification
8   that another AAL2 packet of the plural AAL2 packets carries subsequent data
9   belonging to the frame.

1   62.   The apparatus of claim 61, wherein the predetermined value is a value
2   greater than a maximum number of octets in a standard size AAL2 packet.

1   63.   The apparatus of claim 62, wherein the predetermined value is 46.

1   64.   The apparatus of claim 61, wherein a user-to-user indication (UUI) field in
2   the header of the one of the plural AAL2 packets as sequence number.

1   65.   A unit of a data transmission system which reassembles a frame of user data
2   which has been segmented into plural AAL2 packets for transport, AAL2 packets being
3   packets of ATM Adaptation Layer 2, ATM being Asynchronous Transfer Mode, each
4   of the plural AAL2 packets having a header which includes a length indicator field, one

5   or more Internet Protocol packets having being used to transport the plural AAL2

6   packets, wherein the unit uses a predetermined value in the length indicator (LI) field in

7   a header of one of the plural AAL2 packets to detect that the frame is transported by

8   plural AAL2 packets.

1   66.   The apparatus of claim 65, wherein the predetermined value is one of a

2   range of reserved values for the length indicator field, each value of the range

3   corresponding to a sequence number rather than to a length indication.

1   67.   The apparatus of claim 66, wherein the range comprises numbers which are

2   greater than a maximum number of octets in a standard size AAL2 packet.

1   68.   The apparatus of claim 66, wherein the range includes at least one value

2   between 48 to 63 inclusive.

1   69.   The apparatus of claim 66, wherein the range extends from 48 to 63

2   inclusive.

1   70.   The apparatus of claim 66, wherein a modulo division of the predetermined

2   value provides the sequence number.

1   71.   The apparatus of claim 66, wherein the unit detects in the length indicator

2   field of a last AAL2 packet of the plural AAL2 packets an actual length value of the

3   last AAL2 packet, and wherein the unit detects in a user-to-user indication (UUI) field

4   in the header of the last AAL2 packet a value that can be used to confirm that the last

5   AAL2 packet is in a proper sequence.

1   72.   The apparatus of claim 71, wherein the user-to-user indication (UUI) field

2   in the header of the last AAL2 packet has a value Q-E, where Q is the number that

3   would have been used in the length indicator field had the last cell not been the last cell,

4   and wherein E is an endpoint of the range.

1   73.   The apparatus of claim 65, wherein the predetermined value belongs to one

2   of two ranges of reserved values for the length indicator field, each value of the two

3   ranges corresponding to a sequence number rather than to a length indication.

1   74.   The apparatus of claim 73, wherein the predetermined value is a value
2   greater than a maximum number of octets in a standard size AAL2 packet.

1   75.   The apparatus of claim 73, wherein when the predetermined value belongs
2   to a first of the two ranges, the predetermined value corresponds to a sequence number
3   for a first of the plural AAL2 packets; and wherein when the predetermined value
4   belongs to a second of the two ranges, the predetermined value corresponds to a
5   sequence number for other than a first of the plural AAL2 packets.

1   76.   The apparatus of claim 73, wherein the first of the two ranges extends from
2   48 to 55 inclusive, and a second of the two ranges extends from 56 to 63 inclusive.

1   77.   The apparatus of claim 73, wherein a last AAL2 packet of the plural AAL2
2   packets has a predetermined end-of-user data packet value in its user-to-user indication
3   (UUI) field of its header.

1   78.   The apparatus of claim 65, wherein the predetermined value serves as a
2   notification that another AAL2 packet of the plural AAL2 packets carries subsequent
3   data belonging to the frame.

1   79.   The apparatus of claim 78, wherein the predetermined value is a value
2   greater than a maximum number of octets in a standard size AAL2 packet.

1   80.   The apparatus of claim 79, wherein the predetermined value is 46.

1   81.   The apparatus of claim 79, wherein the unit detects a sequence number in a
2   user-to-user indication (UUI) field in the header of the one of the plural AAL2 packets.

1   82.   A unit of a data transmission system which reassembles a frame of user
2   data which has been segmented into plural AAL2 packets for transport, AAL2 packets
3   being packets of ATM Adaptation Layer 2, ATM being Asynchronous Transfer Mode,
4   each of the plural AAL2 packets having a header which includes a length indicator
5   field, one or more Internet Protocol packets having being used to transport the plural
6   AAL2 packets, wherein the unit detects a sequence number-related value in the length
7   indicator (LI) field of a header of all but a last of the plural AAL2 packets.

83.   The apparatus of claim 82, wherein the sequence number-related value detected in all but the last of the plural AAL2 packets is greater than a maximum number of octets in a standard size AAL2 packet.

84.   The apparatus of claim 82, wherein the unit detects the sequence number-related value in a range of from 48 to 63 inclusive.

85.   The apparatus of claim 82, wherein the unit detects an actual length value in the length indicator (LI) field of the last of the plural AAL2 packets; and wherein the unit detects in a user-to-user indication (UUI) field in the header of the last AAL2 packet a value which can be used to confirm that the last AAL2 packet is in a proper sequence.

86.   The apparatus of claim 85, wherein the user-to-user indication (UUI) field in the header of the last AAL2 packet has a value Q-E, where Q is the number that would have been used in the length indicator field had the last cell not been the last cell, and wherein E is an endpoint of the range.

87.   The apparatus of claim 82, wherein the sequence number-related value detected in all but the last of the plural AAL2 packets is in one of two ranges of reserved values for the length indicator field.

88.   The apparatus of claim 87, wherein for a first of the plural AAL2 packets the sequence number-related value in the length indicator (LI) field belongs to a first of the two ranges, and wherein for all but the first and the last of the plural AAL2 packets the sequence number-related value in the length indicator (LI) field belongs to a second of the two ranges.

89.   The apparatus of claim 88, wherein the first of the two ranges extends from 48 to 55 inclusive, and a second of the two ranges extends from 56 to 63 inclusive.

90.   A unit of a data transmission system which reassembles a frame of user data which has been segmented into plural AAL2 packets for transport, AAL2 packets being packets of ATM Adaptation Layer 2, ATM being Asynchronous Transfer Mode, each of the plural AAL2 packets having a header which includes a length indicator

5 field, one or more Internet Protocol packets having being used to transport the plural
6 AAL2 packets, wherein the unit detects a predetermined number in the length indicator
7 (LI) field of a header of all but a last of the plural AAL2 packets, the predetermined
8 value serving as a notification that another AAL2 packet of the plural AAL2 packets
9 carries subsequent data belonging to the frame.

1   91. The apparatus of claim 90, wherein the predetermined value is a value
2 greater than a maximum number of octets in a standard size AAL2 packet.

1   92. The apparatus of claim 91, wherein the predetermined value is 46.

1   93. The apparatus of claim 90, wherein a user-to-user indication (UUI) field in
2 the header of the one of the plural AAL2 packets as sequence number.

1   94. A data communications network having a first node and a second node,
2 each of the first node and the second node having both a segmentation unit which
3 segments a frame of user data for transport by plural AAL2 packets and a reassembly
4 unit which reassembles a frame of user data which has been segmented into plural
5 AAL2 packets for transport, the AAL2 packets being packets of ATM Adaptation
6 Layer 2, ATM being Asynchronous Transfer Mode, each of the plural AAL2 packets
7 having a header which includes a length indicator field, one or more Internet Protocol
8 packets being used to transport the plural AAL2 packets between the first node and the
9 second node; wherein:
10   the segmentation unit inserts a predetermined value in the length indicator (LI)
11 field in a header of one of the plural AAL2 packets to indicate the frame is transported
12 by plural AAL2 packets; and
13   the reassembly unit detects the predetermined value in the length indicator (LI)
14 and handles the one of the plural AAL2 packets as having segmented user data.

1   95. The apparatus of claim 94, wherein the segmentation unit inserts a sequence
2 number-related value in the length indicator (LI) field of a header of all but a last of the
3 plural AAL2 packets.

1   96.   The apparatus of claim 95, wherein the sequence number-related value
2   inserted in all but the last of the plural AAL2 packets is greater than a maximum
3   number of octets in a standard size AAL2 packet.

1   97.   The apparatus of claim 95, wherein the segmentation unit inserts an actual
2   length value in the length indicator (LI) field of the last of the plural AAL2 packets; and
3   wherein the unit inserts in a user-to-user indication (UUI) field in the header of the last
4   AAL2 packet a value which can be used to confirm that the last AAL2 packet is in a
5   proper sequence.

1   98.   The apparatus of claim 96, wherein the user-to-user indication (UUI) field
2   in the header of the last AAL2 packet has a value Q-E, where Q is the number that
3   would have been used in the length indicator field had the last cell not been the last cell,
4   and wherein E is an endpoint of the range.

1   99.   The apparatus of claim 94, wherein the sequence number-related value
2   inserted in all but the last of the plural AAL2 packets is selected from one of two ranges
3   of reserved values for the length indicator field.

1   100.   The apparatus of claim 99, wherein for a first of the plural AAL2 packets
2   the sequence number-related value in the length indicator (LI) field belongs to a first of
3   the two ranges, and wherein for all but the first and the last of the plural AAL2 packets
4   the sequence number-related value in the length indicator (LI) field belongs to a second
5   of the two ranges.

1   101.   The apparatus of claim 99, wherein the first of the two ranges extends
2   from 48 to 55 inclusive, and a second of the two ranges extends from 56 to 63
3   inclusive.

1   102.   The apparatus of claim 94, wherein the segmentation unit inserts a
2   predetermined number in the length indicator (LI) field of a header of all but a last of
3   the plural AAL2 packets, the predetermined value serving as a notification that another
4   AAL2 packet of the plural AAL2 packets carries subsequent data belonging to the
5   frame.

1   103.   The apparatus of claim 102, wherein the predetermined value is a value
2   greater than a maximum number of octets in a standard size AAL2 packet.

1   104.   The apparatus of claim 103, wherein the predetermined value is 46.

1   105.   The apparatus of claim 102, wherein a user-to-user indication (UUI) field
2   in the header of the one of the plural AAL2 packets as sequence number.